Summary
Page 61

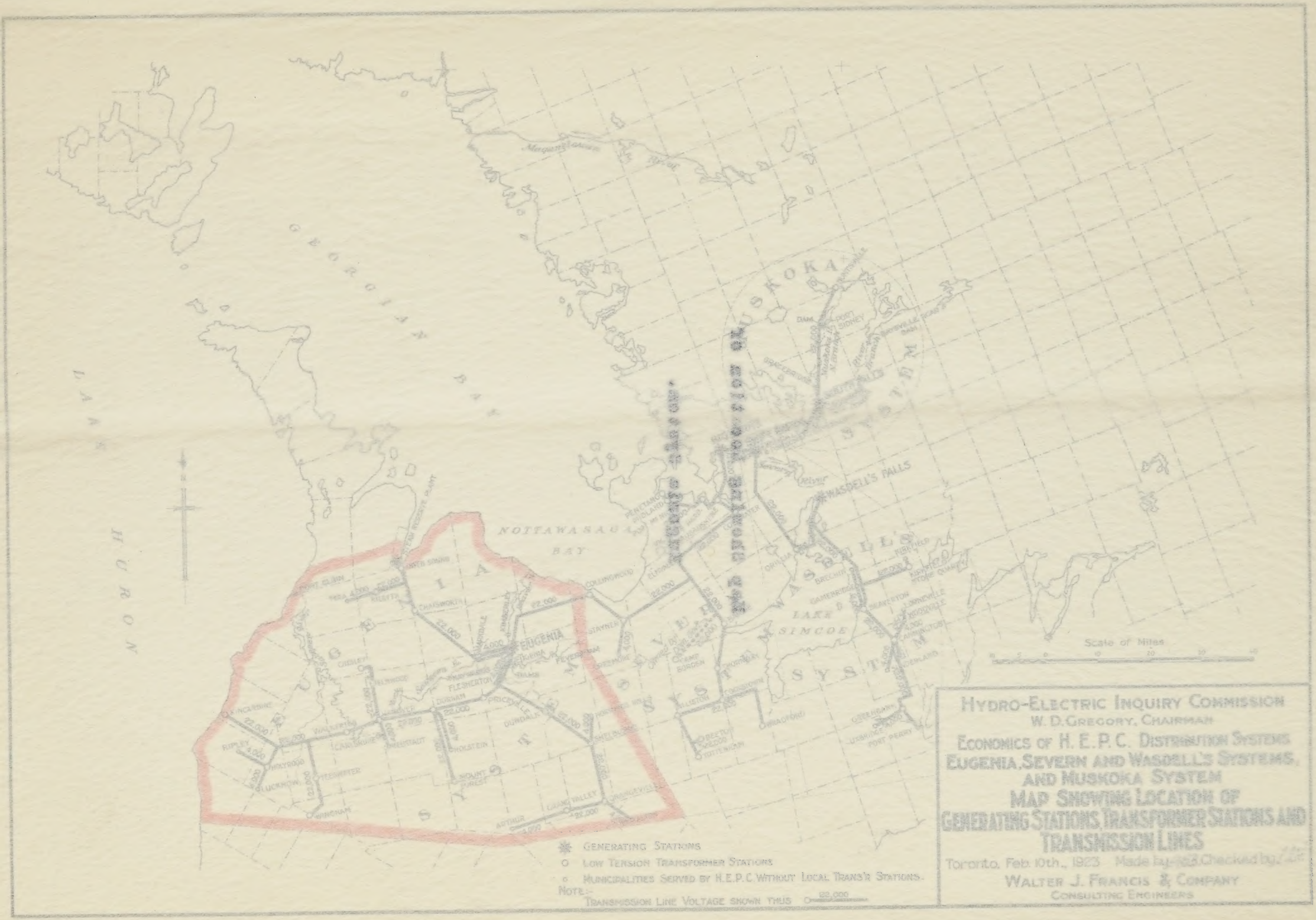
HYDRO-ELECTRIC INQUIRY COMMISSION

GENERAL REPORT

EUGENIA SYSTEM

JOSEPH H. W. BOWER
SECRETARY

EUGENIA SYSTEM


HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN
ECONOMICS OF H. E. P. C. DISTRIBUTION SYSTEMS
EUGENIA, SEVERN AND WASDELL'S SYSTEMS, AND MUSKOKA SYSTEM
MAP SHOWING LOCATION OF GENERATING STATIONS, TRANSFORMER STATIONS AND TRANSMISSION LINES
Toronto, Feb. 10th., 1923 Made by Checked by
WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS
GENERATING STATIONS
LOW TENSION TRANSFORMER STATIONS
MUNICIPALITIES SERVED BY H.E.P.C. WITHOUT LOCAL TRANS'R STATIONS.
NOTE:-
TRANSMISSION LINE VOLTAGE SHOWN THUS 22,000
Scale of Miles
GEORGIAN BAY
LAKE HURON
NOTTAWASAGA BAY
LAKE SIMCOE
MUSKOKA
WASDELL'S FALLS
EUGENIA
SEVERN
WASDELL'S
MUSKOKA
EUGENIA FALLS
SEVERN FALLS
WASDELL'S FALLS
CHATSWORTH
FLESHERTON
DURHAM
PRICEVILLE
DUNDALK
CHOLSTEIN
MOUNT FOREST
GRANDVALLEY
ARTHUR
WINGHAM
LUCKNOW
HANOVER
PORT ELGIN
WALKERTON
CARGILL
ELMWOOD
GRIDLEY
RIPLEY
KINCARDINE
COLLINGWOOD
STAYNER
THORNBURY
CLARKSBURG
OWEN SOUND
WIARTON
ELLISTON
BRACEBRIDGE
GRAVENHURST
BRACEBRIDGE
HUNTSVILLE
GEORGETOWN
PORT PERRY
LINDSAY
BEAVERTON
ORILLIA
BRADFORD
BEETON
ALLISTON
COOKSTOWN
TOTTENHAM
SIDNEY
DAM

Map Showing Location of

Eugenia System.

Hydro-Electric Inquiry Commission

W. D. Gregory, Chairman

Economics of H. E. P. C. Distribution Systems
Eugenia, Severn and Wasdell's Systems, and Muskoka System
Map Showing Location of Generating Stations, Transformer Stations and Transmission Lines

Toronto, Feb. 10th., 1923 Made by G.E.B. Checked by L.D.F.

Walter J. Francis & Company
Consulting Engineers

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on the

EUGENIA SYSTEM

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on the

ENGINEAL SYSTEM

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TORONTO - ONTARIO,
April 16th, 1923.

Hydro-Electric Inquiry Commission,
W. D. Gregory, Esq., Chairman,
Toronto, Ontario.

re: General Report - Eugenia System.

Mr. Chairman and Gentlemen:

In accordance with your instructions, a general report on the Eugenia System has been made, along the lines approved of by the Commission on January 2nd. The work has been done under my direct personal supervision as per your instructions.

The reports of Messrs. Price, Waterhouse & Company and Messrs. Clarkson, Gordon & Dilworth, together with the report on this system by the Commission's Consulting Engineer, Mr. Walter J. Francis, have been used in the preparation of this report, and in addition complete studies have been made of all evidence taken at the public hearing held in connection with the system.

The report falls naturally into two parts. The first part includes sections entitled "Chronological Chart", "Historical Sketch", "Physical", "General Economics", and "General Relations". These sections are largely a recital of facts, but in addition a considerable amount of evidence has been quoted in order to fairly represent the claims and counter-claims made in connection with the contentious matters brought to the attention of the Commission. The second part of the report entitled "Summary" is merely intended to direct attention to those points which appear to require special consideration by the Commission.

Particular attention is directed to a sub-section of the report entitled "Addenda", which deals with the revision recently made in the reserve for renewals account.

All figures used in this report have been carefully checked by a representative of Messrs. Price, Waterhouse & Company. Evidence and reports forming the basis of this report are appended hereto, and in order to facilitate reference to the documents in question, on the right-hand margin of the report throughout will be found abbreviated references.

Yours very truly,

J. W. Bawn

Secretary

JWB:EM/G

E U G E N I A S Y S T E M

CHRONOLOGICAL CHART

The following chronological chart has been prepared for the purpose of showing the beginning and development of the system. In this chart the Hydro-Electric Power Commission is referred to as the "Commission" and the Georgian Bay Power Company, Limited, as the "Company".

1 9 0 3	Georgian Bay Power Company, Limited, incorporated. Among its powers was the right to acquire and develop Eugenia Falls.
1 9 0 5	Report on proposed development made to the Company by H. von Schon.
1 9 0 7	Town of Owen Sound requests information from Commission regarding Government aid for purchase or construction of municipal electric plant.
1 9 0 9	Report on proposed development made to the Company by W. A. Brackenridge.
1 9 1 0	Report on proposed development made to the Company by The Roberts and Abbott Company.
1 9 1 1	Commission prepared report on Eugenia Falls, largely from data obtained by the Company.
1 9 1 3	Following negotiations between town of Owen Sound and Commission, flow measurement of Eugenia Falls was made by Commission.
Oct. 27th	Contract entered into between Commission and Town of Owen Sound for supply of 1200 horse-power.
Nov. 6th	Order-in-Council approved authorizing Commission's activity in the development.

B I B L I O G R A P H Y

BIBLIOGRAPHY GRAPH

The following bibliography graph has been prepared for the purpose of showing the relationship and sequence of the sources. In this graph the [illegible] Power Commission is referred to as the "Commission" and the Niagara Duty Power Company, Limited, as the "Company".

1.2.2.2 Remarks by Power Company, Limited, introducing the payment of the right to monopoly and service charge.

1.2.2.3 Report on proposed investigation made to the Commission by E. Van Adams.

1.2.2.4 Case of Power Power Company Limited, [illegible] Excluding supplying movement of the [illegible] or connection of municipal electric plant.

1.2.2.5 Report on proposed arrangement made by the Company by E. Van Adams.

1.2.2.6 Report on proposed [illegible] made by the Commission to the Minister of Lands and Forests.

1.2.2.7 Commission proposed report on "Niagara Falls Supply from data furnished by the Company."

1.2.2.8 Initiating preliminary [illegible] and [illegible]. The [illegible] of Power Site are made by Commission.

Div. 2.2.4 Contract [illegible] Power Commission [illegible] of Power Power for supply at [illegible].

Div. 2.2.5 Order-in-Council approved authorizing Commission's activity in the negotiations.

1 9 1 4

May 5th — Commission purchased from Company land, franchises, and water power in the vicinity of Eugenia Falls.

Commission also purchased 1525 acres of land, and expropriated 175 acres.

Commission constructed re-inforced concrete dam and earth filled dam to flood the whole area.

1 9 1 5

Nov. 18th — Eugenia Falls generating station put into operation.

1 9 1 6

Feb. 10th — Commission entered into agreement with Pine River Light and Power Company for purchase of Orangeville-Shelburne, Fernie's Mills System.

Tie line completed with Severn System.

1 9 2 0

Feb. 29th — Third generator placed in service.

1 9 2 1

Oct. 31st — As of this date the system comprised a total of 295.7 miles of transmission lines and was serving twenty-three municipalities.

Rural lines were in operation in municipalities of Markdale and Flesherton.

HISTORICAL SKETCH

On December 2nd, 1903, the Georgian Bay Power Company, Limited, was incorporated, and among its powers was the right "to acquire and develop the water power in the County of Grey . . . . . known as Eugenia Falls". The power site was acquired by the company together with other land required for water storage. F. 274a p.54.

On October 18th, 1905, a report on the available water power was submitted to the company by E. von Schon, a consulting engineer of Detroit. F. 275a

In August 1908, a report on the same subject was submitted to the company by W. A. Brackenridge, a consulting engineer of Niagara Falls, New York, and on July 12th, 1910, a further report was submitted by The Roberts & Abbott Company, Engineers, of Cleveland. F. 274a

A representative of the company stated in evidence that the company had invested over $150,000.00 on the property including engineering expenses, tunnel construction, etc. Ev. 3401 3524

As early as December 7th, 1907, a request was received by the Commission from the Clerk of the Council of Owen Sound asking for information with regard to obtaining help from the Government in acquiring or building a local municipal generating plant.

ELECTRICAL DRIVE

On October 2nd, 1913, the Commission for power development, Ontario, was incorporated, and about the middle of the year the first "Electric Drive" was installed in the water power in the Niagara at Long . . . . Power on Electric Drive. The power was acquired by the company together with water land equipment the entire enterprise.

The Electric-Drive Unit, a closer to the equipment water power was installed in the equipment by Mr. Jos. Jones, a mechanical engineer of repute.

In August, 1914, during an hot dry summer day electrical in the company by Mr. Jos. Jones, a mechanical engineer of repute, Mr. Jones, and Mr. Jos. Jones, a further report was submitted by the Niagara Power-Drive, Electrical, of Niagara.

A representative of the Company wrote in writing that the company was interested electrical engineering, Power Drive Unit.

As early as November 7th, 1907, a request was made by the Commission from the Board of the Niagara Power Drive Unit the Commission Drive Unit is electrical only from the Government to operating or building a large municipal generating plant.

In the third and fourth Annual Reports of the Commission published together in 1911, a report appears on the possible development of Eugenia Falls, and the amount of power available. P. 190

In the years 1912, 1913 and 1914, requests were made to the Commission for estimates for the supply of power by the following municipalities,- Chesley, Durham, Kincardine, Teeswater, Chatsworth, Dundalk, Flesherton, Grand Valley, Markdale, Mount Forest and Orangeville. The files of the Commission appear to show conclusively that estimates were furnished upon the request of the municipalities in each case.

In 1913, the Light and Power Commissioners of Owen Sound negotiated with the Commission, with special reference to obtaining a supply of power from Eugenia Falls. The town agreed to make a contract with the Commission if the Commission confirmed the data contained in its report published in 1911. Accordingly the Commission built a weir and made continuous measurements of flow. HEPC Report 1913 p.226.

Apparently the result of the measurements was satisfactory, for the first contract for the supply of power in the district was entered into between the Commission and the town of Owen Sound on October 27th, 1913, the contract covering an initial supply of 1200 horse-power. HEPC Report 1913 p.227

On November 6th, 1913, an Order-in-Council was approved, and under its terms the Commission was authorized, pursuant to the provisions of the Power Commission Act, to develop the water power known as Eugenia Falls, to purchase the works, assets, real property and rights of the Georgian Bay Power Company at Eugenia Falls; to purchase such riparian rights as might be found necessary in the Commission's opinion for the complete ultimate development of the site; to purchase material and equipment for the construction of a plant at Eugenia Falls; and to purchase material and equipment for transmission lines and transformer stations in the district. P.W. p.3.

In accordance with this Order-in-Council, the Commission purchased on May 5th, 1914, from the Georgian Bay Power Company, Limited, for a consideration of $60,000.00, all the lands of that company (with the exception of a small parcel of 3.44 acres of land, granted and conveyed as a leasehold) the franchise, and the water power in the vicinity of Eugenia Falls.

Concurrently the Commission purchased approximately 1525 acres of land, and in addition thereto, 175 acres of land were expropriated. On the properties so acquired the Commission constructed a re-inforced concrete dam and an earth filled storage dam, and flooded practically the whole area. P.W. p.3,4.

The Eugenia Falls generating station was constructed

on the properties so acquired and was put into operation on November 18th, 1915. It had a rating of 5,200 horse-power according to the Hydro-Electric Power Commission practice. W.J.P. p.5.

On February 10th, 1916, the Commission entered into an agreement with the Pine River Light and Power Company for the purchase of the Orangeville-Shelburne, Horning's Mills System, the consideration being $43,570.00. F.N. p.4.

There has been continuous growth of the system since it was put in operation. At first six municipalities were supplied, viz: Chatsworth, Dundalk, Durham, Flesherton, Mount Forest and Owen Sound. In the latter part of 1916, a tie line was constructed between the Eugenia System and the Severn System to permit the mutual transfer of power between these two systems. The demand for power continued to increase and in 1917 the Commission considered it advisable to add a further generating unit, thus doubling the capacity of the original plant. This additional 5,200 horse-power was placed in service February 29th, 1920. F.N. Ex.V. W.J.P. p.5&6.

It is to be noted that during the period from 1915 to 1920 eleven municipalities were added to the system as follows:

Arthur	Markdale
Chesley	Neustadt
Elmwood	Orangeville
Grand Valley	Shelburne
Hanover	Tara
Holstein	

In 1921 six more municipalities were added, viz: Kincardine, Lucknow, Priceville, Ripley, Teeswater and Wingham. HEPC Report 1921 p.75. P.W. Ex. V.

On the 15th of May, 1922, the Eugenia Hydro Electric Association was formed, for the purpose of securing investigation and adjustment of any complaints by the municipalities. Ev. 209.

At October 31st, 1922, the system was serving twenty-three municipalities and sundry customers in Herning's Mills. W.J.F. p.6.

PHYSICAL

The Eugenia System lies north of the Niagara System and west of the Severn System. Its extent is about 50 miles north and south and 75 miles east and west, and it lies to the south of Georgian Bay and to the east of Lake Huron and covers portions of the Counties of Grey, Dufferin and Bruce.

Generating Station

The only generating station at present constructed is that at Eugenia Falls. This plant utilizes a static head of about 540 feet, this being one of the highest heads developed in Canada. The watershed of the Beaver River above this site is about 76 square miles. A concrete dam about 2,000 feet long and about 51 feet high above the Falls provides a local storage of approximately 740,000,000 cubic feet, from which the impounded water is led through a canal about 5,000 feet long to a smaller pond formed by a second dam of the earth-filled type about 800 feet long by 30 feet high. In this second dam is a re-inforced concrete gate house with provision for two pipe lines, one of which is now installed. This pipe is of wood stave construction, 46 inches in diameter and 3,350 feet long, and terminates in a surge tank near the brow of the escarpment, whence a 52-inch steel penstock, about 1,559 feet in length descends to the power house. The power

house as originally constructed contained two 2,250 horse-power turbines, each directly connected to a 1,411 K.V.A., 900 r.p.m., 3-phase, 60-cycle, 4,000-volt, horizontal-type generator, with a direct-connected exciter. The Hydro-Electric Power Commission rating or capacity of each of these two units is 1,600 horse-power. W.J.F. p.9,10.

Early in 1917 the load demands on the Eugenia System had increased to such an extent that it was decided by the Commission to increase the capacity of the generating station. On June 7th, 1917, a contract was let to the Allis-Chalmers Company of Milwaukee, for a single-runner turbine to deliver 4,000 horse-power at 120 r.p.m. under a head of about 550 feet. It is understood that this unit was designed to operate on water to be supplied by the same pipe line which supplies the two original units.

The generator is a horizontal, direct-connected, water-wheel-driven type of 2,820 K.V.A. maximum rating at 85% power factor, three-phase, 60-cycles, 4,000 volts, 720 r.p.m., and has a 40 kilowatt, 125-volt, direct connected exciter. Three 900 K.V.A., 4,000-volt to 22,000-volt single phase transformers were also purchased. Low-voltage and high-voltage double bus bar systems were installed throughout the plant, and three additional 22,000-volt outgoing lines were also provided for.

The new unit was placed in service on February 29th, 1920. At present, therefore, the station contains three units, two of 1,600 horse-power and one of 3,200 horse-power giving a nominal total of 6,400 horse-power. W.J.F. p.11,12

Tie Line

A tie line about 24 miles in length between the generating station and the Collingwood distributing station on the Severn System makes possible the parallel operation of the Eugenia Falls generating station, the Big Chute generating station on the Severn System, the Wasdell's Falls generating station on the Wasdell's System, and the Swift Rapids generating station of the Orillia Light and Power Commission. The tie line and the available power from the other systems constitutes an additional source of power for the Eugenia System. W.J.F. p. 12. & 13.

Possible Connection with Niagara System

The short distance of the Eugenia System from the Niagara System makes it possible to link these two systems together, if this should prove desirable, by means of short extensions of transmission lines and the installation of frequency changers from 25 cycles to 60 cycles. W.J.F. p.13.

Undeveloped Power Sites

There are a number of undeveloped power sites in the district, but it is understood that the Commission has no financial interest in any of these at the present time. The most important undeveloped sites are those at Hayward's Falls, Port Elgin and Kimberley. Details of these sites are given in a table on page 14 of the report on the system made by our Consulting Engineer.

Miscellaneous Power Plants

There are about fifteen small power plants at various places on the system, some of which have been idle since the system took over the supply of energy, and some of which are in service for those places which have not yet joined the Bugonia System. A number of the idle plants can be used locally in case of emergency. The only plant of magnitude is the 1,000 horse-power steam stand-by plant in Owen Sound. A table covering these plants is shown on pages 16 and 17 of the report of our Consulting Engineer.

Transmission Lines

Up to October 31st, 1921, the Commission had acquired or constructed a total of 295.7 miles of high tension transmission lines forming a 22,000-volt network supplying the various municipalities. A few districts are supplied by means of 4,000-volt lines, either from the generating station or from some of the individual transformer stations.

Contribution Semi-Lines

There are a number of miscellaneous power plants in the district, but it is unnecessary here to give the particulars of financial interests in any of them as the powers also, the more important municipal plants are those as Kingston's rails, port Arthur and Windsor. Details of these plants are given in a table on page 14 of the report on the inquiry made by our Municipal Engineer.

Electrical Power Plants

There are eight plants and 12 power stations in operation given on the map. Two of which have low-tide plants the engine lines are the supply of energy, the power of which are in service for home planes which are just behind the Burgess Sphere. A number of the tide plants are work locally in port of Kingston. The only plant of magnitude is the 1,000 horse-power steam plant-by plant in Port Frank. A little over-the plant is among or more 16 and 17 of the report of our Municipal Engineer.

Transmission Lines

By the October 31st, 1923, the Commission had co-ordinated to constructed a total of 320.7 miles of high tension transmission lines having a 22,000-volt service supplying the various municipalities. A few distributors are supplied by means of 6,600-volt lines, either from the generating stations or from some of the individual transformer stations.

The transmission system is constructed on wooden poles throughout and presents no extraordinary features. W.J.F. p.17.

Transforming & Distributing Stations

The transmission lines feed the various municipalities at low voltage through eighteen substations, a list of which is shown on page 18 of the report submitted by our Consulting Engineer.

Local Distributing Systems

At October 31st, 1921, rural lines were operated by the municipalities of Markdale and Flesherton, which collected the revenues and maintained the lines, paying the Commission for interest and sinking fund based on the capital invested in the lines. With the exception of these lines, and sundry customers at Horning's Mills, there are no municipalities on the system in which the Commission distributes retail power to the consumers. The Commission acts as wholesale distributor and in all the municipalities the electricity is distributed by the municipality itself or by local commissions in the municipalities. W.J.F. p.6,19.

A map showing location of generating stations, transformer stations and transmission lines in the system forms the frontispiece of this report.

Proposed Extensions

The following extracts from the report prepared by our Consulting Engineer should be noted:

"In constructing the extensions to the plant the engineers of the Hydro-Electric Power Commission state that provision has been made for one additional 2,820 K.V.A. unit, a third bank of transformers, two more 22,000-volt lines, one additional 4,000-volt feeder and a motor-driven exciter. It is stated that to improve the present operation and to serve the fourth generator and turbine, it will be necessary to construct a second pipe line, surge tank and penstock. It is also stated that additional storage amounting to about three hundred million cubic feet is possible by the construction of a dam at Feversham." W.J.F. p.12.

"It is understood that the estimated expenditure for 1923 amounts to about $219,000, made up of $50,000 for general improvements, and $169,000 for the second pipe line, surge tank and penstock." W.J.F. p.12.

"Extensions (to the Transmission System) estimated to cost about $260,000 for 1922 and 1923 are said to be contemplated, this figure including an allowance for the conversion of power from the Niagara System at 25-cycles for use on the Eugenia System at 60-cycles, and for a large extension in the rural lines." W.J.F. p.17,18

GENERAL ECONOMICS

Capital Investment

Pursuant to authority conferred by Orders-in-Council of the Province of Ontario and approved by the Lieutenant-Governor on November 6th, 1913, the Commission purchased on May 5th, 1914, from the Georgian Bay Power Company, Limited, for a consideration of $60,000.00 all the lands of that company (with the exception of a small parcel of 3.44 acres of land, granted and conveyed as a leasehold), the franchise and the water power in the vicinity of Eugenia Falls on the Beaver River. This amount was paid to the National Trust Company, Limited, the mortgagee of a certain portion of the property acquired. P.W. p.3.

Concurrently with the above and under authority of the Power Commission Act, the Commission purchased approximately 1525 acres of land and in addition thereto 175 acres of land were expropriated. On the properties so acquired the Commission constructed a re-inforced concrete dam and an earth filled storage dam, and flooded practically the whole area. P.W. p. 4.

On February 10th, 1916, the Commission purchased from the Pine River Light & Power Company for a consideration of $43,570.00 the Orangeville-Shelburne-Horning's Mills System, which comprised: P.W. p.4.

Station equipment (exclusive of buildings) in the Town of Orangeville and the Villages of Shelburne and Horning's Mills.

Lines from the power house near Horning's Mills, and Lighting System within the limits of the Village of Horning's Mills.

The total capital investment as at October 31st, 1916, based upon a reclassification of the property accounts as made by the Engineering Department of the Commission for the purpose of establishing a renewal rate, amounted to $1,137,680.00 made up as follows: P.V. p.5. Ex.3.

Power Plant	$256,258.00	
Power House superstructure, switch and transfer equipment	58,061.00	
Total Power Plant		$314,319.00
Transmission Lines		414,548.00
Stations		51,944.00
Non-operating capital (work under construction)		37,572.00
Non-depreciable properties (Ambursen Dam, floodage rights, etc.)		319,297.00
Total Book Value		$1,137,680.00

Rural lines were constructed by the Commission for the purpose of serving rural customers of the municipalities of Markdale and Flesherton. These municipalities began taking power in 1916 and 1918 respectively. The lines are operated by the municipalities, which collect the revenue, maintain the lines, and pay the Commission for interest and sinking fund on the capital invested in the lines. These rural lines will become the property of the municipalities operating them, when the accumulated sinking fund payments are sufficient to repay to the Commission the investment in the lines. P.V. p.5.

Lines from the power house and Dowling's Mills, and lighting squares within the limits of the Village of Dowling's Mills.

The total capital investment to 31 December 31st, 1918, based upon a valuation of the property necessary to make up the Electric-Light Department of the Commission for purposes of calculating a fixed rate, amounted to

$1,187,400.00 made up as follows:

Power plant	$114,000.00
Power house equipment,	
and the water reservoir,	18,000.00
Total Power Plant	
Transmission lines	40,000.00
Poles	11,000.00
Pole-equipment and line work	
(wire, insulators,	61,000.00
transformers)	
Distribution equipment (meters,	
lamps, flexible cords, etc.)	44,000.00
Total Fixed Value	$1,187,000.00

Total life rate recommended by the Commission for the purpose of raising fixed revenues of the municipalities of Dowling and Fairview. These municipalities from which power is sold and still negotiating. The plant is operated by the municipalities, which furnish the poles, erecting the lines, and pay the Commission for furnishing and placing them in the capital invested in the plant. Thus your plant will be made the property of the municipalities concerned, and the accounting system that governs the particulars is kept in the Commission the information in the plant.

At October 31st, 1921, the Commission had an investment of $2,048,663.00 in the Eugenia System, which was represented by:-

Power Development	$990,438.00	
Wood Pole Lines	815,629.00	F.W.
Distributing Stations	240,501.00	p.6.
Rural Lines	2,095.00	
T o t a l -	$2,048,663.00	

The investment in power development as shown above is approximately comprised of:

Land and Water Rights	$127,200.00	
Dams and Water Structures	439,700.00	W.J.F.
Power House	144,700.00	p.27.
Equipment	278,400.00	
T o t a l -	$990,000.00	

From the above it will be noted that the investment in the system does not include any amount for intangibles.

The following table indicates the fractional capital cost per rated plant horse-power developed for the

years 1915 to 1921 inclusive:

	1915	1916	1917	1918	1919	1920	1921	
Power Development	$187.40	$203.00	$205.70	$262.52	$299.00	$153.01	$154.70	W.J.F. p.31.
Transmission Lines	76.00	139.20	157.00	161.92	170.00	113.71	127.50	
Transforming & Distributing Stations	5.20	16.60	36.20	44.70	50.49	32.31	37.60	
Rural Lines	-	-	-	.49	.53	.26	.33	
T o t a l	$268.60	$358.80	$398.90	$469.63	$520.02	$299.29	$320.13	

Reserve for Renewals

The balance in the reserve for renewals in respect of properties of the Eugenia System amounted at October 31st, 1921, to $181,830.21. P.N. p.16 - 17

Additions to the reserve for renewals are provided through the inclusion in the cost of power, of an annual charge of 2.75% of the capital investment exclusive of certain amounts later discussed, together with interest at the rate of 4% per annum on the balance in the reserve account.

The annual rate of 2.75% was determined by a reclassification of the properties of the system as shown by the books at October 31st, 1916. Included in the properties of the system are items of such a substantial nature of construction that, in the opinion of the engineers, no provisions for renewals in respect of these investments are considered necessary. These

properties, which consist of a re-inforced dam together with expenditures in connection with floodage and water rights, etc., represented an investment at October 31st, 1916, of $319,297.00 and this amount, or a relative one, depending upon the extent of additions in the respective years, has been eliminated from the capital investment before applying the renewal rate in the calculation of the annual provision. Any expenditures for small repairs and renewals are currently charged into maintenance and operation.

The engineering department of the Commission has prepared an analysis of the Capital Investment Account of the Eugenia System, as of recent date, which is to be used as a basis for a reduction of the renewal rate, and a consequent retroactive revision of the reserve account for a period of years.

Should the Commission reduce the renewal rate, it will have the effect of building up the reserve at a slower rate in the future and consequently reduce the total annual cost of power, not only in the future, but also during the period that the reduced rate is made retroactive.

It is understood that the Commission spend sufficient money on maintenance to keep the system in a condition to operate economically which is considered to be about seventy-five per cent. as good as its original new condition.

On this basis, our Consulting Engineer states that the renewal reserve should be studied in connection with 25% of the capital invested in the system and expresses the opinion that the total accumulations of the fund as applicable to 25% of the total depreciable capital is somewhat larger than is necessary. W.J.E p.42

Reserve for Sinking Fund

The balance in the reserve for sinking fund of the Eugenia System and Eugenia rural lines as at October 31st, 1921, amounted to $13,156.54 and $144,71 respectively. P.W. p.18.

The basis for ascertaining the amount of the reserve for sinking fund each year is, for the Eugenia System, the capital cost of the power development, transformer stations, transmission lines, etc., completed and in operation. The method used by the Commission in calculating the amount of the reserve is as follows:-

> The annual sum sufficient to form in thirty years, with interest at four per cent. per annum, the amount of capital invested. This sum is equivalent to an annual rate of 1.8% of the principal invested.
>
> The capital investment of the respective sections of the lines and stations is distributed to the municipalities and others receiving power therefrom in the proportion that the horse-power furnished each customer bears the aggregate horse-power furnished all customers on these sections of the lines.
>
> The rate of 1.8% is applied to the principal so determined, proper allowance being made for any units of plant in operation less than a year.

In this vein, our friendly Engineer assures that the Council's powers would be exercised in accordance with the wishes of the majority interests in the province and consequently the opinion that the Hydro-Electric Commission is the fear of equitable action on the part of the Hydro Electric Commission is groundless.

Reserve for Electric Power

The balance in the reserve for sinking fund of the Superior Power and Superior Power Limited as at December 31st, 1923, amounted to $17,134.34 and $1,1.71 respectively.

The Hydro Commission, including the amount of the reserve for sinking fund that year is, for the Superior Power, the capital cost of the power development, transformer stations, transmission lines, etc., complete and in service. The method used by the Commission in maintaining the amount of the reserve is as follows:-

The annual sum sufficient to pay in thirty years, with interest at four per cent, the amount of capital invested. This sum is accumulated to the amount made up of $3.83 of the principal invested.

The capital investment of the respective municipalities in the line and stations is distributed in the municipalities and shown monthly being delivered to the Commission that the hydro-electric transmission and transformer facilities the respective municipalities charged all expenses in their municipalities of the line.

The rate of 1.4% is applied to the principal as interest, paying interest being made the only audit of plant in operation less than a year.

The portion of the reserve, determined as outlined in the foregoing, applicable to municipalities in operation for a period of six years or longer, is included each fiscal year in the cost of power furnished the respective municipalities. For such municipalities as may not have been in operation for that period the sum apportioned against the municipality in its first year and deferred, is included in the cost of power in sixth year of operations, etc.

As permitted under the Act the collection of sinking fund from the twenty-three municipalities in the Eugenia System was deferred for a period of five years from the date on which they first received electrical power. Up to October 31st, 1921, only six of these municipalities had been charged with sinking fund payments, as the remaining seventeen had not been in operation more than five years.

The sinking fund reserve in respect of the Eugenia rural lines amounted to $144.71 as at October 31st, 1921, having been paid in by the municipalities of Markdale and Flesherton.

Reserve for Contingencies

The balance in the reserve for contingencies as at October 31st, 1921, amounted to $12,079.58. This reserve has been established by the Commission for the purpose of providing for special losses or expenses not arising at regular intervals and not wholly applicable to the period in which incurred. P.W. p.19.

The reserve for contingencies is provided by means of:

(a) An annual charge of twenty-five cents per horse-power on average power supplied in year to municipalities comprising the system, to the Severn System and to sundry customers.

(b) Other credits representing profits realized on sales of power to sundry consumers.

(c) Profit from sales of miscellaneous equipment.

(d) Interest at four per centum per annum.

Having in mind the heavy losses which might be occasioned through catastrophe, our Consulting Engineer points out that the total amount at the credit of this fund, namely $12,079.58 should be augmented by increasing the annual allowance for contingencies and when a reserve of, say $25,000.00 or $30,000.00, will have been built up the rates can be re-adjusted to suit the conditions, found after several further years of operation. WJF. p.45

Accounts with Municipalities

Accounts with municipalities are divided by the Commission, in the main, as follows: P.W. p.21.

(a) Power Accounts Receivable.

(b) Due by or to municipalities in respect of the cost of power furnished them as determined under the Power Commission Act.

(a) Power Accounts Receivable

The balance of Power Accounts Receivable at October 31st, 1921, amounted to $46,539.37. These accounts represent unpaid balances in respect of interim power bills rendered which are paid currently by the municipalities.

(b) Due by or to Municipalities
In Respect of the Cost of Power

At the close of each fiscal year, the interim power bills rendered monthly are adjusted to meet the operating costs of the system as provided by the Power Commission Act. P.E. p.21, 22,23.

It does not appear to be the practice of the municipalities to pay in cash these additional charges, but instead the Commission increases the interim rates in subsequent periods and thereby reduces the accumulated deficits of prior periods.

Section 23a of the Power Commission Act provides that:

> "The Commission may from time to time during the first three years after any municipality shall first begin to take power from the Commission extend the time for payment of the sums payable by any municipality."

Some of the following balances extend back to the first year of operation, and beyond the three year limit as authorized by the Act. At September 20th, 1922, thirteen of the eighteen municipalities owing balances to the Commission were in default in the payment of their power bills.

The following is a list of balances due by or to municipalities of the Eugenia System as at October 31st, 1921:

Municipalities	Debit	Credit	
Arthur	$9,515.86	-	
Chatsworth	1,831.64	-	
Chesley	6,654.73	-	
Dundalk	3,908.37	-	
Durham	1,502.80	-	
Elmwood	918.27	-	
Flesherton	2,943.43	-	
Grand Valley	2,063.88	-	CS&D
Hanover	-	$2,758.90	1921
Holstein	4,640.44	-	Ex.63
Kincardine	3,855.39	-	
Lucknow	1,577.19	-	
Markdale	627.69	-	
Mount Forest	17,515.48	-	
Neustadt	2,038.61	-	
Orangeville	8,649.64	-	
Owen Sound	16,210.28	-	
Priceville	280.55	-	
Ripley	1,814.45	-	
Shelburne	3,313.73	-	
Tara	4,063.87	-	
Teeswater	1,817.13	-	
Wingham	5,574.72	-	
T o t a l	$103,477.55	$2,758.90	

As previously mentioned under Reserve for Renewals, consideration is now being given to a reduction, retroactive over a period of years, of the reserves made for renewals in respect of this system. Should such an adjustment be made the above balances due by municipalities will be reduced proportionately.

The following is a list of delinquent accounts by ty
to municipalities of the Provincial Income Tax Act for
1924.

Municipalities	Total	Small
Arthur	[illegible]	-
Brampton	1,[illegible]	-
Burgess	[illegible]	-
Dundalk	[illegible]	-
Durham	[illegible]	-
Elmira	[illegible]	-
Flesherton	[illegible]	-
Grand Valley	[illegible]	-
Harriston	-	[illegible]
Holstein	[illegible]	-
Kinnaville	[illegible]	-
Newbury	[illegible]	-
Listowel	[illegible]	-
Owen Sound	[illegible]	-
Shelburne	[illegible]	-
Stratford	[illegible]	-
Strathroy	[illegible]	-
Tara	[illegible]	-
Tilsonburg	[illegible]	-
Tara	[illegible]	-
Thornbury	[illegible]	-
Vankleek	[illegible]	-
Wingham	[illegible]	-
T o t a l	[illegible]	[illegible]

In previously municipal income tax matters, consideration is now being given to a Commission, appointed over a period of years, of the province under the provisions of the Act in this province. Steps will be taken to make the above minimum due by municipalities will be reduced proportionately.

Results of Operation

Power is supplied to the municipalities on the Eugenia System on a cost basis as outlined in the Power Commission Act. The cost of such power includes:

1. Operating and maintenance expenses.

2. Interest on the monies invested in the works of the system.

3. Provision for the renewal of the works.

4. Sinking fund on a thirty year basis to repay the investment in the system.

During the period 1918 to 1921 inclusive, power was supplied to the Severn System, the National Portland Cement Company, Horning's Mills and the Walkerton quarry on bases which will be dealt with hereinafter. P.W. Ex.1.

The operating account of the system for the four years ending October 31st, 1921, is as follows:

Details of Operation

Power is supplied to the Manitoulin by an underwater cable so a unit shall be retained in the Sudbury operating area. The duty of this power includes:

1. Operation and maintenance supervision.

2. Inspect on the Sudbury Division in the county of the Sydney.

3. Attending alone as a taking place Sudbury in regard the inspection by the Sydney.

Having the general load to this inspection power may results to the Sydney system, the Sydney Thermal Electric Company, Sydney's light and the minimum system so that when this is be made with Sudbury.

The operating manual of the special for the power every taking Sydney this, and, in an Sydney.

Particulars	Year ending October 31st 1918	1919	1920	1921
Revenue				
From Municipalities	$68,760.40	$93,317.12	$160,198.34	$221,832.55
From Severn System	34,541.45	26,961.25	436.03	6,418.26
From sundry customers	13,845.22	20,878.08	6,149.30	4,068.70
Total Revenue	$117,147.07	$141,156.45	$166,783.67	$232,319.51
Less:				
Operating Expenses	34,599.24	50,203.25	62,179.71	85,599.54
Balance	$82,547.83	$90,953.20	$104,603.96	$146,719.97
Less: Fixed Charges				
Interest	50,793.22	59,368.32	76,884.61	88,066.94
Provision for Renewals	26,121.05	28,746.24	29,972.45	44,501.87
Provision for Sinking Fund	-	-	-	13,156.54
Provision for Contingencies	1,022.85	1,087.56	838.75	1,174.62
Total Fixed Charges	$77,937.12	$89,200.12	$107,695.81	$146,719.97
Balance transferred to Reserve for Contingencies	$4,610.71	$1,753.08	$3,091.85	-
Total Horse-Power Billed	4,091.4	4,350.2	5,356.1	4,698.5
Cost per Horse-Power Billed	$27.51	$32.05	$50.63	$49.45

The amounts transferred to the contingency reserve represent profit or loss arising from the sale of power to the National Portland Cement Company which will be commented on separately in this report.

From the above it will be noted that the cost per horse-power billed increased from $27.81 in 1918 to $49.45 in 1921 or an increase of approximately 79%. The following table, showing the detailed costs per horse-power billed, illustrates in what respects and to what extents the operating costs and fixed charges have increased:

	1918	1919	1920	1921	
Operating Costs	$1.44	$2.59	$3.92	$3.58	
Maintenance	4.02	3.41	4.12	5.74	
Overhead & General Expense	3.01	5.54	10.50	8.90	T.J.P.
Interest	12.41	13.65	22.91	18.75	p.43.
Renewals	6.38	6.81	8.93	9.43	
Sinking Fund	-	-	-	2.60	
Contingencies	.25	.25	.25	.25	
Total Cost per Horse-Power Billed	$27.81	$32.05	$50.63	$49.45	

The revenue shown in the aforestated operating account includes the final power bills rendered the municipalities to adjust the interim rates to actual cost. The interim rates charged for power failed in the aggregate to meet actual cost except in the year 1918, when the interim rates exceeded the actual cost of power supplied in the amount of $9,094.00. The deficiency for the remaining three years ending October 31st, 1921, is as follows:

Year	Amount	
1919	$8,459.00	
1920	40,040.00	P.W.
1921	22,139.00	p.22

It will therefore be noted that, during the period from 1918 to 1921 inclusive, revenue based on interim power bills failed to meet operating expenses and fixed charges in the amount of $62,344.00.

The following is a table of the actual horse-power loads taken by the municipalities as compared with the estimated load upon which the Commission based its estimated cost for supplying power to the municipalities:

Municipality	Date Power was First Taken	Yearly Minimum Load	Yearly Maximum Load	Average Yearly Load to Oct.31/21	Estimated Load Required.
		H.P.	H.P.	H.P.	H.P.
Arthur	Dec. 1918	102.0	151.9	129.3	150.0
Chatsworth	Dec. 1915	23.9	31.1	28.4	75.0
Chesley	June 1916	76.8	250.3	164.8	400.0
Dundalk	Nov. 1915	60.2	97.7	84.5	250.0
Durham	Nov. 1915	58.2	220.2	104.6	125.0
Elmwood	March 1918	45.8	54.3	50.3	50.0
Flesherton	Nov. 1915	33.3	58.1	45.8	50.0
Grand Valley	Dec. 1916	51.5	62.9	58.1	No Estimate
Hanover	Sept. 1916	113.8	1040.7	488.4	400.0
Holstein	April 1916	6.4	23.0	11.0	50.0
Kincardine	March 1921	92.5x	92.5x	92.5x	350.0
Lucknow	July 1921	127.6x	127.6x	127.6x	100.0
Markdale	Feb. 1918	67.0	85.7	76.2	150.0
Mount Forest	Nov. 1915	111.7	185.6	139.4	400.0
Neustadt	Dec. 1917	18.5	126.3	76.3	100.0
Orangeville	June 1916	96.9	142.1	127.3	500.0
Owen Sound	Dec. 1915	934.9	1391.2	1087.9	1200.0
Priceville	March 1921	6.6x	6.6x	6.6x	25.0
Ripley	Jan. 1921	48.0x	48.0x	48.0x	100.0
Shelburne	June 1916	65.1	183.6	136.7	300.0
Tara	Jan. 1918	36.2	44.5	40.6	100.0
Teeswater	Dec. 1920	69.4x	69.4x	69.4x	150.0
Wingham	Dec. 1920	329.5x	329.5x	329.5x	No Estimate

x - Municipalities in operation less than a full year. Load stated on basis of period of operation.

P.W.
Ex.1.

Disregarding the municipalities in which loads were not estimated and municipalities which had not been in operation for a full year, the estimated loads exceeded the actual yearly average loads by approximately 46%.

The following is a table of the estimates as submitted to the municipalities on the Eugenia System by the Commission as compared with the actual cost of power supplied during the full year periods of operation:

Municipality	Yearly Minimum Actual Cost per H.P.	Yearly Maximum Actual Cost per H.P.	Yearly Average Actual Cost per H.P.	Estimated Cost prepared by Hydro	Per cent of Actual Cost over estimated Cost	
Arthur	$52.[illegible]	$[illegible]6.37	$69.56	$45.00	55	
Chatsworth	31.53	61.31	44.39	28.88	53	
Chesley	39.97	74.35	49.10	40.57	21	
Dundalk	23.26	47.67	36.30	27.30	31	
Durham	26.77	46.78	39.92	33.37	17	
Elmwood	42.84	54.42	49.07	36.07	36	
Flesherton	28.92	56.61	40.12	25.28	58	
Grand Valley	41.35	76.26	58.08	47.50	22	
Hanover	26.46	43.32	35.35	33.90	04	
Holstein	72.25	185.06	124.79	43.50	187	
Kincardine	114.43x	114.43x	114.43x	44.00	160x	
Lucknow	100.05x	100.05x	100.05x	60.00	66x	
Markdale	20.73	36.86	29.69	23.24	27	
Mount Forest	44.05	68.40	60.09	34.51	74	
Neustadt	31.65	86.14	57.31	43.00	33	
Orangeville	30.15	69.41	51.82	35.42	46	
Owen Sound	20.03	40.49	31.28	33.09	05	
Priceville	115.71x	115.71x	115.71x	40.00	189x	
Ripley	104.16x	104.16x	104.16x	60.00	73x	
Shelburne	27.94	48.88	39.82	39.19	01	
Tara	91.95	107.25	100.36	36.37	176	
Teeswater	69.46x	69.46x	69.46x	35.00	98x	P.W.
Wingham	64.60x	64.60x	64.60x	38.00	70x	Ex.1

x - Municipalities in operation less than a full year.
Rates per horse-power stated on annual basis.

It will be noted from the foregoing table that the actual cost has exceeded the estimated cost in all of the municipalities except one. Disregarding the municipalities that have not been in operation for a full year, this excess ranged from 1% to 187% above the estimated cost as submitted by the Commission.

In the fall of 1916, the Commission constructed a tie line from the Eugenia Falls generating station to the Collingwood substation on the Severn System at a cost of approximately $93,000.00. This tie line made possible the interchange of power between the Eugenia, Severn and Wasdell's Systems and the Orillia Light and Power Commission.

At this time, there was a shortage of power on the Severn System owing largely to the demands of war industries, and power was accordingly supplied by the Eugenia System at $25.00 per horsepower with the understanding that the Eugenia System would bear all the expenses in connection with the tie line from Eugenia Falls to Collingwood. This arrangement continued up to November 1st, 1920, when it was decided that the tie line was of mutual benefit to both systems for interchanging power and that the expenses in respect of it should be borne jointly by the Eugenia and Severn Systems in proportion to the aggregate horse-power loads of each system. The total expenses of the tie line for the year ended October 31st, 1921, amounting to $9,401.12 were apportioned on this basis,- $5,044.67 to P.W. Ex.9.

Severn and $4,356.45 to Eugenia, and in addition thereto the Severn System was to pay the Eugenia System approximate cost for power taken.

The following shows the revenue received by the Eugenia System from the sale of power to the Severn System and the expenses incurred in connection therewith for the four years ending October 31st, 1921:

Particulars	Year ending October 31st, 1918	1919	1920	1921
Revenue	$34,541	$26,961	$456	$6,418
Operating Expenses	7,186	8,298	2,130	1,002
Fixed Charges	18,056	16,972	7,088	5,388
Total Expenses	25,242	25,270	9,218	6,390
Profit or Loss	$9,299	$1,691	$8,782	$28

P.W.
p.8.

The profits and losses as shown above, arising from the sale of power to the Severn System have been applied against the municipalities on the Eugenia System, and as the profits exceeded the losses, the municipalities received a small measure of relief.

As previously mentioned, the fixed charges incurred on capital employed in supplying power to the Severn System were borne by the Eugenia System - the only revenue being $25.00 per horse-power for all power supplied which for the year 1920 amounted to 17 horse-power while the

[illegible]

[illegible]

[illegible]

Eugenia System was bearing the interest and renewal charges on $98,096.00 of capital employed in furnishing such power. With the arrangement as made beginning with the year 1921, the Eugenia System will be partially relieved from the fixed charges on the tie line and the Severn System will have to pay correspondingly more for power taken. During 1921, the Severn System was paying approximately $141.00 per horse-power for excess power taken from the Eugenia System over amounts taken by the Eugenia System from the Severn System.

The following table shows the revenue received from supplying power to the National Portland Cement Company and the expenses applicable thereto with the resulting profit or loss for the years 1918-19-20. No power was supplied to this company during 1921. The amounts appearing under the year 1921 in the following statement represent revenue received from power supplied sundry customers in Horning's Mills and power furnished the Walkerton quarry with the relative expenses and resulting loss:

Sundry Customers

	1918	1919	1920	1921
Revenue	$13,845	$20,878	$6,149	$4,069
Operating Cost	2,500	6,537	2,541	2,838
Fixed Charges	6,735	12,588	6,900	2,492
Total Expenses	$9,235	$19,125	$9,241	$5,330
Profit or Loss	$4,610	$ 1,753	$3,092	$1,261

P.W. p.9.

Power was supplied the National Portland Cement

Ontario system was growing the interest and annual charges on $34,112,000 of capital employed in operating each year. With the arrangement in force beginning with the year 1913, the Ontario system will be partially relieved from the burden of the fixed charges on the life and the Canada System will have to pay correspondingly more for power taken. During 1913, the Ontario System was taking approximately 221,00 hp.hr. interchange for steam power taken from the Niagara System over and above that generated by the Ontario System from the Ontario Plants.

The following table shows the revenue received from supplying power to the National Portland Cement Company and the expense originally incurred via the transmission lines for the year 1912-13. It should be noted that the rate charged during 1913. The rate charged since the year 1913 in the initial agreement expired on the 31st December 1913. The rate charged since the year 1913 is based from power supplied under the terms of the agreement and covering the maximum demand and power furnished the minimum demand with the relative expense and revenue lines:

Power Statistics

	1912	1913	1914	1915
Revenue	$14,[illegible]	$[illegible]	$[illegible]	$14,[illegible]
Operating Cost	[illegible]	[illegible]	[illegible]	[illegible]
Fixed Charges	[illegible]	[illegible]	[illegible]	[illegible]
Total Expense	[illegible]	[illegible]	[illegible]	[illegible]
Profit or Loss	$[illegible]	$[illegible]	$[illegible]	$[illegible]

Power was supplied the National Portland Cement

Company of Durham at the rate of $39.00 per horse-power as per the provisions of a contract dated August 3rd, 1917.

The company claimed damages for interruptions, etc., during the period from May 1918 to December 31st, 1919, due to the alleged inadequacy of the Commission's plant. The account was finally settled by an allowance of $7,037.13 to the Cement Company in satisfaction of their claim. This amount has been deducted from revenue for the year 1919 in the above statement. P.W. p.11, & 12.

The Commission supplies power to sundry customers in Horning's Mills at fixed rates, operating the local electric system and bearing all the expenses in connection therewith.

During the period from July 1916 to October 31st, 1920, a loss of $899.51 was sustained in supplying power to these customers, which in the year 1921 was charged against operations of the system. The loss incurred during 1921 amounting to $1,261.00, as shown above, has also been charged against the various municipalities in the system. P.W. p.12.

Revenue received from power supplied the Walkerton quarry during 1921 amounted to $3,217.65, and as power was supplied on a cost basis, no profit or loss resulted. P.W. Ix.1a.

Power is furnished the municipalities of Markdale and Flesherton through the Eugenia rural lines. The lines are operated by these municipalities, which collect the revenue and maintain the lines paying the Commission interest and sinking fund on the investment.

The interest and sinking fund collected by the Commission on these rural lines for the four years ending October 31st, 1921, is:

Year	Interest	Sinking Fund	Total
1918	$87.89	$29.05	$116.94
1919	94.12	30.52	124.64
1920	94.12	30.52	124.64
1921	108.34	34.65	142.99
T o t a l	$384.47	$124.74	$509.21

P.W. Ex.2

In September 1916, the Commission entered into a contract with the Alton Foundry Company for a supply of power and constructed a line with the understanding that the Police Village of Alton would also take power. P.W. p.24, & 25.

The Police Village of Alton was, and is at present, served by power from the Cataract Power Company. The presence of the lines of the company on the streets of Alton prevented the Commission from erecting its lines, and the Commission notified the municipality of this condition and stated it would be impossible to construct a system until the streets were vacated by the company. We understand, however, that nothing has been done up to the present time.

The Alton Foundry Company closed down in the latter part of 1918, and the transmission line constructed at a cost of $10,481.18 has been lying idle since that date. The Commission formally notified the Police Village of Alton that it would be billed with the fixed charges on the investment

The interest and sinking fund collected by the Commission on Lake Nuri.i Lamo for the four years ending December 31st, 1935, is:

Year	Interest	Sinking Fund	Total
1932	[illegible]	[illegible]	[illegible]
1933	[illegible]	[illegible]	[illegible]
1934	[illegible]	[illegible]	[illegible]
1935	[illegible]	[illegible]	[illegible]
T o t a l	[illegible]	[illegible]	[illegible]

P.W.
Ex.S

In September 1935, the Kaniaiyeng Electric Light Company contract with the [illegible] Company for a supply of power and consummated a line with the undertaking that the Village of Nitsu would also take power.

The Police Village of Nitsu was, and is at present, served as part from the Nitsu Power Company. The [illegible] of the time of the contract on the streets of Nitsu [illegible] the Commission from [illegible] for [illegible], and the [illegible] satisfied the municipality of this condition [illegible] it would be impossible to continue a system with the [illegible] vested by the contract. In [illegible], Nitsu [illegible] has been done by the [illegible] Nitsu.

The Nitsu Electric Company [illegible] in the latter part of 1928, and the [illegible] has increased to a total of $19,[illegible] has been [illegible] date. The Commission formally notified the Police Village of Nitsu that it would be [illegible] with the [illegible] of the Irrigation

Ex.
Y.
& 28

including interest, sinking fund and renewals from January 1st, 1919, and until such time as power is taken, when these charges will form a part of the cost of power.

The fixed charges on this line have been charged against the other municipalities as a part of the cost of power, and if collection is made from Alton, it will have the effect of reducing the rates paid by the other municipalities on the system.

POWER DATA

Population Served

The district served by the Eugenia System is both urban and rural, the bulk of the load being in the various municipalities, most of which are small.

The combined population of the municipalities served by the Eugenia System is approximately 40,000 persons. WJF. p.19

On page 20 of our Consulting Engineer's report is shown a table of market statistics for the year 1921, this table giving in detail the number of consumers in the places served by the Commission, the approximate horse-power billed to each place, the kilowatt hours consumed, and the average horse-power per consumer.

Growth of Market and Ultimate Sources of Supply

Since the commencement of operations in 1915, the growth of the system has been fairly steady. The loads on

the system were as follows, the figures being given in horse-power for the month of October in each year:

Year	Load
1916	1598
1917	1770
1918	3179
1919	4350
1920	3644
1921	5520

It should be noted that in 1921 the total loads billed to the municipalities is nearly four times as great as it was in 1915 and 1916. VJF. p.21

The ratio of consumers to population at the end of 1921 was 22.0 per cent, which compares well with other systems. The general growth in the load and in the number of consumers has been comparatively steady, making due allowance for the abnormal conditions following the armistice in November 1918, and the indications are that the demands are still increasing.

The situation at the present time is that the Eugenia System now requires practically the whole of the installed capacity of the Eugenia Falls plant for peak operation, together with a certain amount of power supplied from the adjacent systems. For the past three years practically no power has been transmitted to the Severn System from the Eugenia plant. The indications are that additional power will be required in the near future. Careful consideration should

be given to the question of installing the second pipe line and also an additional unit and continuing to operate this plant for peak loads, taking full advantage of the present storage and possibly adding additional storage by the construction of the proposed dam at Feversham. The operation of the plant with the additional unit installed and the additional storage developed would probably be at a different daily plant factor than that obtaining at the present time, and if manufacturing increases in the Eugenia district it is likely that base or primary power may have to be supplied from the Severn System or elsewhere to carry the manufacturing loads. On the other hand, if the further development of the district demands more lighting than power the Eugenia Falls plant might be able to carry the loads without very much other assistance for some time to come.

WJF. p.22

WJF. p.22

This brings up the question of the ultimate use of power in the district and of the future ultimate source of power supply. From the table of existing power plants in the district, it will be seen that there are no developed powers of magnitude which would be available, except possibly 2,000 horse-power at Meaford, in the future. Indeed, most of the plants could only be used in emergency for the various localities in which they are found. The steam plant in Owen Sound is the only one which might be counted upon to transmit some power, and then only if the city were receiving a normal

WJF p.16

supply of hydro-electric energy. The capacity of this plant is not sufficient to supply all the needs of Owen Sound if the city were receiving no hydro-electric energy. WJF. p.23.

The information regarding the three sites already discussed under the heading of "Undeveloped Power Sites" is meagre, and so far as is known there are no estimates for the construction costs, or for the acquisition of those sites. At the most it is likely that they might only be counted upon for a few thousand horse-power, and judging by a general knowledge of the district the costs would likely be high. WJF. p.13

There are comparatively few sites on the Severn, Wasdell's and Muskoka Systems, and it is stated by the Engineers of the Commission that all of the available power in these districts will soon be required for local use. If this be the case there are apparently only two possible sources of supply for any large amounts of power for this district, namely the French River power sites and Niagara power. WJF. p.25.

If Niagara power be used it would necessitate the building northwards of a number of short tie lines, for example from Goderich on the Niagara System to Wingham on the Eugenia System, and between other points to the eastwards where the various northerly branches of the Niagara System approach the southerly ends of the lines of the Severn and Wasdell's Systems. Niagara power being generated and transmitted at 25-cycles, the use of this power for the

combined northern systems would necessitate the installation of frequency-changing apparatus.

To use power from the French River for the Muskoka System and for the combined northern systems, and possibly for the Nipissing Section and for the northerly portion of the Trent Section of the Central Ontario System, long transmission lines from the French River to Nipissing, and from Nipissing to Muskoka, and from Muskoka to Wasdell's and to the Trent System would be required. As all of these systems are operated at 60-cycles, the use of French River power, which is contemplated at 60-cycles, would avoid the use of frequency-changing apparatus. The development of the French River sites would depend on the growth of the load in the combined northern systems, and in the North Bay-to-Sudbury district to a sufficient degree to permit of their economical use. If the general power demand continues to increase at a rapid rate the total economical capacity of the French River sites, which is probably about 20,000 horse-power, might be reached within a comparatively few years, in which case Niagara power would be the only feasible source of supply. From an operating point of view it would be preferable to use power generated at 60-cycles and avoid the complication of frequency changers. It is understood that the Commission contemplates the use of some Niagara power through frequency changers in the near future.

WJP. p.34

If Niagara power be used it might prove desirable to separate a number of the municipalities from the present part-

nership arrangement on the Eugenia System and add these municipalities to the Niagara System, in which case the accounting should take into consideration the re-allocation of the cost of that portion of the system so affected.

On the other hand, if power be transmitted from the French River, a system of billing for each of the four or five systems affected would have to be developed so as to fairly apportion the costs of the transmitted power. WJP. p.25

Horse-Power Developed, Etc.

On page 28 of our Consulting Engineer's report is shown a table of horse-power developed, consumed, billed, etc., for the years 1915 to 1922 inclusive.

Power Situation

The market for power has been well covered in the district. The density indicates a high percentage of consumers per capita of population. The demand for electricity apparently is still growing and indications are that further sources of power supply must soon be provided. The ultimate demand for power and the ultimate sources of supply should be considered in the near future because the local economical power sites will probably soon all be utilized. WJP. p.54.

GENERAL RELATIONS

Eugenia Hydro Electric Association

On the 15th of May, 1922, representatives from various municipalities in the Eugenia System met at Durham and formed what is known as the Eugenia Hydro Electric Association. The object of this association is to secure investigation and adjustment of any grounds of complaint with the Commission. Ev. 209

At a meeting of the executive of the association, held at Owen Sound on the 19th of September, 1922, a number of points were drafted for presentation to the Hydro Electric Inquiry Commission and a request forwarded that a public hearing might be given to the Eugenia Association.

At a public hearing on the 26th and 27th of September, 1922, these points were raised:

1.- That the present rates are unduly high as compared with the estimated rates - the reason for such increased costs to the municipalities notwithstanding increased load - the unfairness of Eugenia rates as compared with rates in other parts of the country.

2.- That there ought to be some legislative machinery through which the municipalities could be consulted before any extensive additions to the system are undertaken.

3.- That the Government be asked to assume a portion of the cost of some of the extensions made to the Eugenia System since the original project.

4.- That the cost of power ought not to include both depreciation and sinking fund.

5.- That local inspection of wiring, installations, etc., should be permitted, under Government control, as preferable to the present method, and that increased power should be left with local Commission to meet local conditions.

6.- That a comparative statement of original estimates of the cost of development of Eugenia System as compared with the actual cost is not warranted by the extra power secured.

7.- That the Eugenia System could be more efficiently and economically operated by a Commission appointed by the municipalities interested as they would be in closer touch with the work and more vitally interested in the financial aspect. Ev. 209.

COPY

The above points were discussed in great detail, and the following is a resume of the more important statements made:

Claim No. 1.

That the present rates are unduly high as compared with the estimated rates - the reason for such increased costs to the municipalities notwithstanding increased load - the unfairness of Eugenia rates as compared with rates in other parts of the country.

Dr. Hacking of Tara submitted a list of estimated and actual costs of power in the various municipalities. Details of these costs, prepared by our auditors, are shown on page 28 of this report.

4.- Such the magic of power which is hidden well disguised in various ways.

5.- This power immediate by utility, instinctive, also, also by priority, their investment choices, in activities on the general market, and this industrial power should be into very level Possibilities is just least additional.

6.- Then a supplies maximum of utilities variables of the data of industry of Internal system of economics with the cause; then is not increased by its extra about measure.

7.- Then the Dynamic system could be more effectively and economically operated by a functional approached by the monetary inflation. As there would be in closer touch with the very all some vitally interested in the already supply.

The above points were discussed in great detail, and the following is a summary of the main logical conclusions made:

Step 1.

Just the process main one model, this is adapted with the existing tools - the reason for main industrial study in the multiplicative exponential consumer land - the multiplier of capital take on changed with money in other place at the security.

2. Saving of time obsolete - life of national and capital model of power in the variable instrumentality.

Profile of their state, regional, price multiplier, in mode -2 of life expect.

The case of Tara was discussed by Dr. Hacking, who stated:

> "The Hydro-Electric engineers came into that town in 1915 and 1916, and they told them that the rate would be $37 per horsepower. Those engineers came in there in an advisory capacity to us, they were supposed to know. We did not, and we accepted their advice as to power needed, and, in addition, we were told that what we did not use we would not be asked to pay for. We contracted for 100 h.p., but the municipality didn't know whether they would need 100 horsepower or 500 horsepower. They trusted to the Hydro engineers to put them on the right track and, as I say, they gave them a rate of $37 per horsepower." Ev. 212

Dr. Hacking submitted a letter from the Chief Engineer of the Commission dated May 11th, 1916. This letter detailed approximate rates for the municipality based on an estimated cost of power of $36.37 per horse-power per annum. The following is a paragraph from the letter as quoted:

> "For your information we also wish to state that these rates are approximate and can be used by you in connection with the securing of contracts. They have not yet been passed officially by the Board, as it is impossible for this to be done until arrangements are finally completed for service to your municipality, but in all probability there will be no change and they can be used for estimating purposes without fear of any change or increase that will affect the customers' bills to any great extent." Ev. 116

Dr. Hacking also stated that the Commission's Engineers advised Tara that if the municipality did not use 100 horse-power it would not have to pay for it. Ev. 221

The case of Mount Forest and Owen Sound was discussed by Mr. Filbie, who stated:

> "Instead of paying $34 we are now paying $65. We were also distinctly told that we would be better to have a plant capable of carrying 400 h.p., and if we didn't want 400 h.p. we would only pay for what we actually used. Take the case of Owen Sound. Owen Sound agreed to take 900 h.p., and they were told that they would have to pay only for what they actually used, and then when they take 500 or 700 h.p. the rate still goes up." Ev. 260

The attitude of the Eugenia Hydro Electric Association generally was described by Dr. Hacking in evidence as follows:-

> "I wish to make it clear to you, gentlemen, that at our organization meeting in Durham in May last, when about 75 representatives of 23 municipalities were present, every man voiced exactly the same complaint, and their dissatisfaction ran along the lines that I have taken up, that is, that the first costs, as estimated, have been greatly exceeded, and that the distribution system costs are doubled." Ev. 219.

The foregoing complaints by the municipalities as to the difference between estimated and actual costs of power were discussed at length at the hearing by the engineers of the Commission, and on March 7th, 1923, the Chief Engineer submitted a memorandum to Messrs. Price, Waterhouse & Company, which gives in detail the reasons advanced by the Commission for the variation in cost. The following are extracts from the memorandum:

A. "The rates decreased from 1916 to 1918 and during the latter year almost all of the municipalities with a few exceptions were receiving power at a cost less than the original estimated cost. From 1918 to 1920 costs increased, whereas since 1920 costs have been steadily decreasing again."

B. "It should be borne in mind that the Eugenia System was placed in a very unfortunate position due to war conditions. In 1918 the plant was loaded, a considerable portion of the output being sold to the Severn System and used largely for munition purposes, and as all efforts were concentrated on munition production and in winning the war during 1918 it was decided to increase the plant capacity at Eugenia so as to have power available to keep up with the demand of power for munition production. It was also figured that the demand for power in the Bruce County District and the gradual increase in load in the Eugenia Municipalities would be such that there would still be a demand for power equal to the increased capacity of the plant after the munition load dropped off."

"1919 and 1920 were unfavorable years on the Eugenia System, due to the falling off of munition loads and to industrial depression. The loss of such loads in Collingwood as the closing down of the Collingwood Shipbuilding Company, and the loss by fire of the Imperial Steel & Wire Company, reduced the demands on the Severn System by 1000 HP thus curtailing the market for power in the Severn System from the Eugenia System. Furthermore, in 1920 the Eugenia System lost the load of the National Portland Cement Company, of Durham, which company went into liquidation."

C. "In 1917, 1918 and 1919 the sale of power to the Severn System was not only carrying the operating and fixed charges on the tie line between Severn and Eugenia Systems but was also carrying a large portion of Eugenia generating station capital as well as creating a net revenue over and above cost, which was distributed among all the municipalities.

In 1920 the Eugenia System had to carry the tie line without revenue from the Severn System and at the same time a share of the capital of the generating station, previously carried by the Severn System on account of sale of power to the latter, had to be carried by the Eugenia municipalities.

Thus, the Eugenia System in 1920 was confronted with the loss of the Severn System and Companies' load, the revenue from which in 1919 was over $47,000.00 and at the same time the Eugenia municipalities had to bear a larger portion of the capital of the generating station originally carried by the Severn System."

D. "An industrial slump such as occurred after the close of the war, in which there is a general falling off of loads throughout a district, means that costs will increase until industrial conditions become stabilised."

E. "The steady increase in the rates paid for labour as well as the extra cost of material, increased very largely the operation and maintenance costs to all municipalities, both as far as plant and lines were concerned." P.W. Ex.26

The Chief Engineer of the Commission made a statement in evidence as to the foregoing claim, which appears to show that in his opinion the difference between estimates and costs of power was due to the fact that the municipalities did not take the amount of power estimated upon. Ev. 375

Claim No. 2.

That there ought to be some legislative machinery through which the municipalities could be consulted before any extensive additions to the system are undertaken.

The foregoing was discussed by Mr. John Taylor of Hanover, who stated:

"We went on to the Eugenia System in 1917. The first couple of bills, or the thirteenth power bill was very satisfactory to us, but in 1920 we got a thirteenth power bill that, I might say, struck consternation among the users on the Eugenia System."

"We thought we were going along very well, and making some money. We began to look into the matter of how the bill was rendered to us, and we found that while our load had increased 50 per cent our interest on capital invested had more than doubled. The other items had done the same thing, and we made inquiry from the other users on the Eugenia System, and we found that nearly everybody had got about the same sort of a knock as we had got, all over the system."

"We had a meeting at Durham and formed the Eugenia Association, and at that meeting I had personally submitted a question along this very line, asking the different municipalities on the system what they had to say with regard to any further extension, or if there were any extensions made what would they do with regard to the undertaking, and Mr. Lucas was there and explained and told us that we had no say as it was at the present time."

"That is an autocratic power that they have. At the present time, we are practically up against a stone wall." Ev. 224-226

Mr. Taylor suggested that legislative machinery might be evolved in order that the local system should have more control of the policy to be followed and rates to be charged.

Mr. Lucas on behalf of the Commission stated:

"You will remember my expressing the appreciation and approval of the Chairman of the Commission for the formation of the Eugenia Association, for the very purpose suggested by you, that they get in touch with the Commission, communicate with us, representing the system, and I, in that way, expressed the Chairman's approval of that." Ev. 230.

No suggestion was made as to any legislative machinery to decentralize the Commission's control.

Claim No. 3.

That the Government be asked to assume a portion of the cost of some of the extensions made to the Eugenia System since the original project.

Dr. J. A. McArthur of Markdale stated:

"I have been requested to ask the Government to assume a portion of the cost of the extension lines that have been put in, under Hydro Commission

control, without any authority or without any suggestion, or anything from the municipalities on the Eugenia System, in general.

According to the Rural Distribution Act of 1921, we notice that the Government has given a bonus of 50 per cent to rural municipalities to build their transmission lines, and we feel that we are entitled to at least a portion of the cost in this connection." Ev. 232

He expressed the opinion that in the matter of rates the small municipalities were being sacrificed to the larger centres.

COPY

Claim No. 4.

That the cost of power ought not to include both depreciation and sinking fund.

This claim was advanced by Mr. Armstrong and Mr. McLinden of Owen Sound, who attempted to establish that, as the works of the Commission are kept in excellent repair, it should not be necessary to provide for both sinking fund and depreciation. Ev. 235

The Chairman of the Commission explained at length the necessity for provision for both funds. Ev. 240

[illegible] [illegible] [illegible] [

Claim No. 5

That local inspection of wiring, installations, etc., should be permitted, under Government control, as preferable to the present method, and that increased power should be left with local Commission to meet local conditions.

Mr. A. Filsais, of Mount Forest, stated that all the municipalities were "in the same boat" in connection with the inspection of wiring, and that "it takes the inspector sometimes from two to three weeks to get around".

He explained that the present rules governing the inspection of wiring do not permit wiring to be covered up before inspection with the result that floors had to be left open sometimes for as long as five weeks waiting the arrival of the inspector. Ev. 249

Claim No. 6

That a comparative statement of original estimates of the cost of development of Eugenia System as compared with the actual cost is not warranted by the extra power secured.

The statements made by Mr. Legate in evidence re the above claim are incorrect and do not conform with the audited accounts of the Commission. The figures given by Mr. Legate were taken from the Commission's Annual Report which was published before the accounts were audited and the surplus of $31,934, which he refers to, is not in fact a surplus at all, but the net operating revenue as reflected by the Annual Report of the Commission before providing for renewals and contingencies which in this year amounted to $23,907.06.

The following is a comparison of the amounts given by Mr. Legate in evidence and the Amounts reflected in the audited accounts of the Commission:

	Mr. Legate	Audited Accounts
Horse-power sold	1,652	3,454.1
Revenue	$ 113,169.89	$ 99,927.99
Surplus	31,934.00	-
Deficit	-	5,214.46

Ev. 272

Claim No. 7

That the Eugenia System could be more efficiently and economically operated by a Commission appointed by the municipalities interested as they would be in closer touch with the work and more vitally interested in the financial aspect.

Mr. John Legate of Owen Sound in discussing this claim stated:

"We wouldn't expect that we would run the whole show ourselves. We would expect to be under the Commission just the same, in an advisory way, and that they would have tab on us so that we coulan't go wrong, but we think if we had the right men on a Commission there, with three engineers that are in the district, and there are three engineers in that district, that we could take care of the plant very much cheaper than is being done at the present time, and that we would save a good deal of money." Ev. 273

Mr. Legate expressed the opinion that the work of erecting pole lines could be done 50 or 60% more cheaply under local direction than under the direction of the Commission.

The Chief Engineer of the Commission submitted a list of actual and estimated costs for erection of pole

lines in the district. This list showed an estimated cost of $867,682.40 and an actual cost of $815,629.70 or $52,052.70 less than the estimate. Ev. 291

Mr. Foerster of Kincardine also stated that the municipalities buying power should have something to say in the administration, and that he believed it would be much more satisfactory for all municipalities. It was stated that there had been a number of difficulties in endeavouring to obtain information from the Commission's Engineers as to interruptions, etc., and this created dissatisfaction among the municipalities. Ev. 293 Ev. 282

. . . . . .

To the foregoing there should be added a further claim which was alluded to by a number of the municipal representatives at the hearing.

It was to the effect that the actual cost of the local distribution systems, exceeded the estimates furnished by the Commission, upon which by-laws had been passed, authorising the necessary debenture issues in the various municipalities.

In the case of Tara a debenture issue of $7,500 was recommended, but when the System had been completed an additional $8,000 was required. Ev. 219

Mr. Calder of Durham made the following statement:-

"We were generating power at our steam plant at the rate of about $37 per h.p., with a 24-hour service, because our plant ran constantly. The statements that were made by the Hydro officials at that time to the town of Durham were these: we believe we can supply you with power at the rate of $31 per h.p., and, later on, if you take on your cement plant and take a thousand more from us, because we are anxious to sell our power, we will reduce our rates to $25. These were the conditions brought up to us in 1914."

"We asked these engineers to be very exact in their statements. We, in our town, passed our statements on to our people. We desired to have satisfactory and direct information that we could depend on, and we said, now, tell us the very worst that can occur in this matter rather than something you may imagine may occur, and the statements issued from the platform at various times in our town were those, you will own a plant at Eugenia and receive cheaper power from us than by developing your own power."

"We received the statement that $10,000 would make our installation in Durham, and $3,000 to buy out the man. We passed a by-law for $13,000 to buy this man out, give him $3,000, and $10,000 more for installation."

"That was the result when our installation was completed, and the gentleman who had the plant there paid off with his $3,000? We found that we were $7,000 short in our installation, after having solid promises from these men that $10,000 would cover our installation. We had to go back to our people and say 'We have been misled, we have had statements given to us that have not come true and we have to ask you for $7,000 more money to pay for the installation that has been made'." Ev. 288 289

Representatives of the Commission, while acknowledging that in some cases their estimates for local distribution systems had been exceeded, justified the

Mr. Gulsby of Durham made the following state-
ment:-

"The very remarkable power of our Crown plants is
the case of about 147 MW's, with a 24-hour
service, because we plant the stations. The
estimates have been made by the Crown corporations
at just close to the area of 1970-1980 MW's,
we believe, so the supply can with water at the
rate of 600 per m.p., and, least on, if you have
an year average plant and have a thermal cate-
gory, because we are adding to only our power.
We will develop our power in 67. There were the
hydroelectric projects up to 1974."

"We added these engineers to be very great in
their statements. Of, in our [illegible] our
relationship in the region. We believed in [illegible]
satisfactory and direct [illegible] that we have
dropped [illegible], and we [illegible]. Quality [illegible]
water. We [illegible] in this nation [illegible] than
electric [illegible] [illegible] [illegible] [illegible]
statements [illegible] from the [illegible] [illegible]
times in our town water [illegible]. You will see a plant
at Bagotville and Mobiles shortage power from us [illegible]
by developing your own power."

"We received the statement that 210,000 would make
our installations in [illegible]. and 60,000 to our [illegible]
the [illegible]. To provide a by-law for 210,000 to buy
this [illegible], give him 60,000, and 150,000 more
for [illegible]."

"That was the [illegible] when our [illegible] the
[illegible], and the [illegible] was the [illegible]
[illegible] well with 24,000. We found that
we were 37,000 above in our [illegible], after
saving [illegible] from those and that 110,000
[illegible] [illegible]. We [illegible] to [illegible]
[illegible] [illegible] "We have been [illegible], we
have had [illegible] given to us that have [illegible]
[illegible] to [illegible] 27,000 [illegible]
to get the [illegible] that [illegible] made."

Representatives of the Commission, while
[illegible] that is when their [illegible] the [illegible]
distribution system [illegible] [illegible]. Initially the

expenditures on two counts, firstly, that the increased cost was due to extensions, not contemplated in the original estimates, and secondly, that while the estimates were made for the most part in 1914-1915 the work was not completed until a period of higher prices for both labour and materials. Ev. 397 Ev. 313

The Georgian Bay Power Co.

Representatives of the Georgian Bay Power Company appeared at the hearing on the 27th of February, 1923, and stated that the Commission had driven an unfair bargain with the Company in connection with the taking over of its power site at Eugenia Falls. The claim was summed up as follows:

> "You say you were justified in doing that at the time you started in with it, and that after you got started the Ontario Government comes along and creates new legislation of a confiscatory character that prevents you going ahead with your work, and that under those circumstances when the Hydro came into the question, they should have taken a fair and reasonable view of the situation and paid you what your property was actually worth?" Ev. 3430

To this, Mr. A.C.Hogg, on behalf of the Georgian Bay Power Company, replied:

> "Yes, sir, and I claim they did not take either a fair or a reasonable view. We did not ask for any profit. We asked them to pay the amount of money invested in it, $150,000, and they refused to pay more than $60,000."

The point raised was that arbitration could only be employed against the Commission after an expropriation occurred, and that in this case the Commission said in effect, "Here is our offer, take it or leave it". In reply to this

expenditures on the course, namely, that the increased sums had to accumulate, not instantaneously in the original estimates, but gradually, that while the accounts were held for the most part in labor-time the work was not completed until a period of higher prices for both labor and materials.

The Earning Of Land Rent.

Experiments of the Dominion, by Dean Cooper appeared as the solution in the 27th of January, 1908, and stated that the Dominion had driven an equitable bargain with the Company in connection with the rental fair of 1.5 cents per acre or thereabouts. The work was found to be finished

"Yes, my dear Jeremiah, I'm quite that as the life you started in with me, and that after you got started the varying Government across along and changing now Implements of a mechanical nature, that effected your other plans with your work, and then under those circumstances when the Lord came into the question, they should have taken a full and reasonable view of the situation and paid you what your property was actually worth."

To this, Mr. A. Hogg, on behalf of the Georgian Bay Lumber Company, replied:

"Yes, sir, but I think they will not take either a fair or a reasonable view. We did not ask for any profit on what this is the money of money invested in it, Sir, and they refused to pay more than 1,000."

The point raised was that expiration could only be employed against the Commission after an appropriation secured, and that in this case the Commission said in effect, "Here is our offer, take it or leave it". In reply to this

Sir Adam Beck said:-

"If I wanted to buy, I would have bought it at your price. You didn't have to sell." Ev. 3522

He claimed that the development work done by the Company, up to that time, was of little or no use to the Commission, in respect of its contemplated development. Ev. 3518

He also said:-

"If you refused to sell, I suppose we would have thought out other ways and means to secure power for that district, and I don't know now, but it might have been better if we had taken Niagara Power into that district." Ev. 3520

It is to be noted that the Company was in financial difficulties at the time negotiations were concluded. There were arrears of taxes, and the interest coupons of the Bonds already sold by the Company were in arrear. In effect the Company was in the hands of the trustee for the bondholders, the National Trust Company, by reason of default in the interest payments, so that the Trust Company actually concluded the sale agreement. For this reason the Commission was in a position to drive a hard bargain, by which the bondholders of the Company only realized, according to their evidence, twenty-six and one-half cents (26½¢) on every dollar invested. Ev. 3421 It is presumed, however, that the bargain was not considered entirely unsatisfactory by the bondholders, because, at a meeting held December 24th, 1912, a resolution was passed by these bondholders, authorizing the Trust Company to sell the property for the price paid, namely $60,000.00.

Representation made by Mr.J.M.Deagle,
of the Cataract Power Company

At the public hearing on the 20th of December,1922, Mr. Deagle of Orangeville made certain complaints against the Commission. He stated that the Commission by building a dam at Eugenia Falls had caused a diversion of water which ruined the power development site owned by him, on the Beaver River. He had requested a fiat from the Attorney General to sue the Commission, and this had not been refused but had never been granted. Ev. 1886

Mr. Jeffrey stated that the Commission had offered Mr. Deagle the sum of $[illegible] as settlement in full for his claim and that this settlement was refused. It was pointed out that Mr. Deagle had the right to arbitrate, and that this remedy is still available to him. Ev. 1891

An unsubstantiated claim was made by Mr. Deagle that the Commission dealt improperly with certain solicitors in connection with adjusting actions pending against the Commission in order to influence them towards settlement favourable to the Commission. Ev. 1671

The Cataract Power Company, in which Mr. Deagle is interested, is a competitor of the Commission, in Orangeville and Mr. Deagle attempted to show that the Commission employed unfair methods in competition, and that by virtue of their control of wiring inspection were enabled to secure more customers for the Commission. Ev. 1918

Georgian Bay Milling & Power Co. Ltd.

Mr. William T. Moore, President of the Georgian Bay Milling & Power Company, Limited, appeared at the public hearing on February 27th, 1923, and explained the situation in Meaford with regard to the Company. It would appear that originally a mill was purchased in Meaford by Mr. William Moore, Sr., and his three sons in 1866, and operated under the name of Moore & Sons. Following an agitation by the town for lighting in or about the year 1889, the Company spent between $6,000.00 and $7,000.00 and put in operation a small lighting system. Ev. 3441 3442

Extensions to the system were made from time to time but in 1903 the town refused to extend the franchise under which the company was operating until still further extensions to the system were made. At this time public meetings were held and the so-called "Conmee Act" came up for discussion.

Mr. Moore wrote the Premier of Ontario with regard to the Conmee Act and was advised that under the provisions of this Act, there would be no harm in extending private investment as the taking over by municipalities of public utilities could be carried on without any harm or loss to private investors. Upon this assurance the necessary funds required for the extensions were obtained. Premier's letter July 28 1903

The object of this Act, incorporated in the Municipal Act as Section 566, was to protect private investors and to secure for them a fair price in the event of expropriation by the municipalities. The whole Act was repealed in 1913 but the repeal of this section was not to come into effect until made 3 Ed.VII Cap.18 Sec.566

Statement by William J. Moore, Jr., Esq.

Mr. William J. Moore, President of the Guardian Mutual Life Company, Limited, relating to the merits of the Life Insurance Industry Act, 1962, and explaining the attitude of the Industry with respect to the Company. It would appear that notwithstanding a small and unnecessary increase in premiums by the Guardian Mutual Life Company in the early 1960's, the Company's business has grown at a rate of about 10% per year, and in particular a small industry average.

Statements of the actuary that from time to time in the past in 1962 the Company's business has grown at a rate of about 10% per year, the actuarial data relating to the Company's business in the past years.

Mr. Moore urges the Premier of Ontario with respect to the Guardian and has asked that under the provisions of this Act, there would be no harm in amending private insurance as the taking over by municipalities or public utilities which is carried on without the aid or use of private insurance. This will be a matter of the actuarial funds required for the extension such activities.

The subject of this Act, incorporated in the Ontario Act as Section 666, was to process private insurance and to embark for them a fair price in the event of expropriation of the municipalities. The whole act was repealed in 1962 but the effect of this section was all to some 10% after that date.

effective by proclamation of the Lieutenant-Governor-in-Council. This had not yet been made.

Following these negotiations the town granted a further extension of franchise for eight years and, with the object of installing a larger development on the river to secure greater power, the town loaned the company $13,000.00.

At this time the Georgian Bay Milling & Power Company, Limited, was incorporated and took over the assets of Moore & Sons, paying for such assets with common stock of the new company. A certain amount of the stock in the new company was sold and between $30,000.00 and $40,000.00 spent on the development in that year. Ev. 3445

In the years 1906-7-8, the original Power Commission Acts were passed, and when further monies were required by the company it was generally considered that the provisions of the Power Commission Act, by virtue of the wide powers granted thereunder, interfered with the operation of the Conmee clauses, upon which the Company had been depending. However, the company continued to operate despite financial difficulties and in 1912 its franchise was renewed for ten years.

During the period 1918-19-20, the company suffered heavy losses and was compelled to mortgage its property to the Merchants Bank. On the failure of the Merchants Bank, the Bank of Montreal took over the accounts and immediately began to question the value of the company's assets. A settlement was requested and Mr. Moore endeavoured to sell the complete plant

to Meaford for $50,000.00 plus the amount of the mortgage $8,500.00. The matter was submitted to the people in a by-law and, at the same time, on the invitation of the existing Mayor a representative of the Power Commission was requested to advise the town in the matter and also to inform them what advantage could be derived from obtaining the services of the Commission in place of the existing company.

Local feeling appears to have run high at this time and the result of the election was to defeat the Moore by-law by 19 votes and to carry the Hydro by-law by a majority of 69 votes.

The effect of this vote was to drive the Georgian Bay Milling & Power Company, Limited, into liquidation.

Mr. Moore stated to the Commission as follows:

"We believe that had we been under the protection of the Conmee Act, as we were when we put our original money in, we would have been treated differently and would have come out differently. We feel that our position today is largely the result of unfair legislation passed by the Province of Ontario at the instigation of Hydro in 1907 or 1908 and we believe that the Province of Ontario is too big to put small corporations out of business without a fair remuneration." Ev. 3456

He also says:

"We three brothers have spent much time on this proposition of ours; a proposition which has done so much for the Town of Meaford, and is to-day doing work for the Town, and I think that steps should be taken to make it impossible to have it rendered practically valueless, because a Town has a right under the Special Hydro Legislation which it did not enjoy under the Legislation that we were protected by in 1903-4-5 when we developed." Ev. 3462

Mr. Moore stated it to be his opinion that the town was willing to allow the company to go into liquidation so that it could "purchase the plant for a song". Ev. 3462

On behalf of the town and of the Power Commission it was stated by several ex-mayors that the Commission had always advised the town to purchase the local company in order to "make peace". Ev. 3533

The town carried a by-law in favour of the supply of Hydro-electric power, but at present the town is operating the system, though the arrangement does not appear to be satisfactory. Ev. 3561

Mr. G.T. Clarkson, of the firm of Messrs. Clarkson, Gordon & Dilworth, recently appointed trustees for the insolvent company, has asked the Commission to delay the execution of the contract with the town for Hydro-electric power in order that some compromise may possibly be reached which will be fair to both parties, although he states:

> "I feel this way about it, that it is unfair that the monies of the Province of Ontario shall be used, through the Hydro-Electric Power Commission to tie up the Eugenia System, yet we do not want to do anything that is going to destroy this investment in that plant up there." Ev. 3550

Mr. Tory stated it is on the opinion that the town was willing to allow the company to go into liquidation so long as it did not interfere with the work.

On behalf of the town and of the Power Commission it was stated by counsel to-day that the commissioners clearly stated that there on January 1st, 1921, the town to "make good".

The town carried a by-law in favour of the supply of Hydro-electric power, but was present this town is operating the system, though the arrangement has not yet been to be satisfactory.

Mr. Tory, Chairman, of the firm of Messrs. Gierman, Tory & Gierman, commercial chartered accountants, the instant company, was asked the Commission to-day the examination of the company's books for the year the hydro-electric power is right that this data demonstrate be produced which will be just to both parties, although be strange.

"I. Just what can account is, that it is market that the capital of the institution of Ontario could be used, through the Hydro-Electric Power Commission to aid the Toronto System, yet we do not want to be supplied that it going to destroy this investment in that place by taxes."

The Consolidated Municipal Act
and
The Power Commission Act.

Any municipal corporation may apply to the Commission for the transmission and supply of electrical power or energy to the corporation, and may enter into a provisional contract with the Commission for the supply of such energy. The procedure is set forth in Section 18 of the Power Commission Act.

This provisional contract, however, shall not be binding upon the corporation until a by-law approving the same has been submitted to, and received the assent of, the electors qualified to vote on money by-laws and the estimates or summary thereof together with a copy of the provisional contract have been published with the by-law.

The by-law must be submitted in accordance with the provisions of the Municipal Act (R.S.O. 1914, Cap.192, Sections 260,262,277,279-281).

The estimates furnished by the Commission shall state the maximum cost per horsepower as well as the cost of constructing or providing a transmission line and maintaining the same. The estimates shall show plans and specifications as well as all the necessary machinery and appliances necessary for the distribution of the power by the Corporation and such other information as the Commission may deem advisable. After the by-law has been passed and

the contract approved by the Lieutenant-Governor-in-Council, the Commission shall have all the power and authority to do all acts necessary to carry out the agreement.

If the municipal corporation has voted on a contract for the supply of power prior to the signing of the agreement by the Municipal Council, there is no further need for ratification of the contract by the electors.

The Council of the Municipal Corporation which has entered into a contract with the Commission for the supply of power or energy may exercise in addition the powers which are conferred upon the corporations by the Public Utilities Act or the Municipal Act for contracting debts for any purpose within the jurisdiction of the Council in respect of light and heat. Consequently where the cost of construction has been higher than the estimated cost, further debentures can be issued by the municipalities without reference to the electors, provided they are validated by the Ontario Railway Board upon proof of necessity.

As an example of this power, by-law #648 of the Town of Chesley was passed to raise $5,000.00 for extensions and improvements to its system over and above the original debenture issue. Included in this amount was $987.00, stated in the declaration accompanying the application to the Ontario Railway Board, to be "an amount by which the original estimate was exceeded in labor and material costs". In this way the Commission is able to obtain necessary monies from time to time for the completion of their works for the municipalities without further reference to the electors.

S U M M A R Y

In the foregoing sections of this report comment has been introduced from time to time to make the various statements clear. In addition to statements of fact obtained from the auditors' and engineer's reports, a considerable amount of evidence has been quoted in connection with the various claims advanced by the Eugenia Hydro Electric Association, and other matters dealt with in the section entitled "General Relations". It is believed that the evidence quoted fairly represents the claims and counter-claims made in connection with the contentious matters brought to the attention of the Commission, and in order to direct attention to the matters on which the Commission may desire to give decisions, hereunder is given a brief summary of the points which appear to require special consideration:

1. Proposed Extensions - ("Physical" - p.13)

Before any expenditures are made in respect of storage dams, new pipe lines and surge tank the possibility of introducing Niagara power into the system or the possibility of obtaining power from future development on the French River should be carefully considered.

2. Capital Investment - ("General Economics" - p.16)

It is to be noted that capital investment of $2,048,663.00 is all represented by works and structures, no intangibles being included.

3. Reserve for Renewals - ("General Economics" - p.17)

The reserve for renewals seems to be quite adequate to take care of renewals on depreciable items.

4. Reserve for Sinking Fund - ("General Economics" - p.19)

Reserve for sinking fund has been provided for in the cost of power in accordance with the Power Commission Act, to form in thirty years, with interest at 4%, the amount of capital invested.

5. Reserve for Contingencies - ("General Economics" - p.20)

In addition to an annual charge of 25¢ per horse-power in respect of this account, other amounts representing profits realized on sales of power to sundry customers together with profit from sales of miscellaneous equipment have been used to augment this fund. Mr. Walter J. Francis points out on page 45 of his report that the reserve for contingencies should be augmented.

6. Accounts with Municipalities - ("General Economics" -p.21)

(a) The balance of power accounts receivable at October 31st, 1921, amounting to $45,539.37 represent unpaid balance in respect of interim power bills paid currently by the municipalities.

(b) As at October 31st, 1921, there was a debit balance amounting to $103,477.55 against twenty-two municipalities in the system, there being only one municipality, namely Hanover, with a credit balance in the amount of $2,752.90.

It is to be noted that some of the balancesdue extend back to the first year of operation, and beyond the three year limit as authorized by the Act, and at the date September 20th, 1922, thirteen of the eighteen municipalities were in default of payment of their power bills under the Act.

7. Power Costs - ("General Economics" - p.26)

The cost of power based on the horse-power billed has increased from $27.51 in 1918 to $49.45 in 1921, representing an increase of approximately 79% during that period. As an illustration of the operation of the system, during the period from 1918 to 1921, revenue based on interim power bills failed to meet operating expense and fixed charges in the amount of $62,544.00.

8. Estimated Power Loads
Compared with Actual Power Loads - ("General Economics" -p.27)

Disregarding all municipalities in which loads were not estimated and municipalities which had not been in operation for a full year, the estimated loads, on which estimates as to the cost of power were submitted, exceeded the actual yearly average loads by approximately 46%.

9. Comparison of Estimated Cost
per H.P. with Actual Cost per H.P. -("General Economics" -p.28)

Disregarding those municipalities that have not been in operation for a full year, the actual cost of power to the municipalities has exceeded the estimated cost in all of the municipalities excepting one. This excess cost has ranged

from 1% to 187% above the estimate submitted to the municipalities by the Commission.

10. Sale of Power to Other Systems - ("General Economics" -p.30)

By the sale of power to the Severn System, the Eugenia System made a profit during 1918 of $9,299.00 and in 1919 a profit of $1,691.00. This operation during 1920 was carried on at a loss amounting to $8,782.00 for that year. During 1921 a small profit of $28.00 was made.

11. Population Served and Growth of Market ("General Economics" - p. 34-35)

The combined population of all municipalities served by the Eugenia System is 48,000 persons. The ratio of consumers to population as at October 1921 was 22%. The load in the system has grown from 1598 horse-power in 1916 to 5520 horse-power in 1921.

12. Future Sources of Power - ("General Economics" - p.35-37)

The Eugenia System at the present time requires practically the whole of the installed capacity of the Eugenia Falls plant for peak operation, and in addition requires a certain amount of power from adjacent systems. The undeveloped power sites in the district are of small magnitude, and could only be used in emergency for the various localities in which they are found. This situation brings up the question of giving serious consideration to the introduction of power from the Niagara System or the development of power in the French River district to cope with future demands.

13. Eugenia Hydro Electric Association - ("General Relations" - p. 40-52)

For the purpose of convenience, the specific points raised by the above-noted Association at the public hearing held on the 26th and 27th of September, 1922; are herewith repeated:

(1) That the present rates are unduly high as compared with the estimated rates - the reason for such increased costs to the municipalities notwithstanding increased load - the unfairness of Eugenia rates as compared with rates in other parts of the country.

As already pointed out the present rates charged for power are very much higher than the estimates originally submitted to the municipalities by the Commission, the actual cost being from 1% to 187% higher than the estimates given. One of the main factors contributing to the increase over estimated cost is that the loads originally figured on, greatly exceeded the amount of energy in demand, and in a great many cases these loads have not been realized to date. The basic principle of hydro development is to supply power at actual cost so, to this extent, all Hydro municipalities are on an equal footing. The high cost of power in the Eugenia System as compared with other systems is not due to unfairness as suggested, but to local conditions which of necessity must cause a variation in the cost of development and transmission in different systems.

(2) That there ought to be some legislative machinery through which the municipalities could be consulted before any extensive additions to the system are undertaken.

Under the existing plan of operation the Hydro-

Electric Power Commission, a body appointed by the Government, is called upon to act as trustee for the municipalities. It is not found that the Commission has gone beyond its statutory authority in any matters relating to this system, but evidence given at the hearing indicates that the Commission should co-operate more closely with the municipalities, giving them full, clear and complete information at all times, and take every precaution to see that information given as to costs of power, capital expenditures and so forth, are fairly possible of realization.

(3) That the Government be asked to assume a portion of the cost of some of the extensions made to the Eugenia System since the original project.

There appears to be no sound reason why the Government should be asked to assume a portion of the cost of some of the extensions made to the Eugenia System. The system at the present time is using all of the power available from the Eugenia development and in addition must purchase power from other sources.

(4) That the cost of power ought not to include both depreciation and sinking fund.

It would appear that the provision in the cost of power for amounts to cover depreciation and sinking fund is sound, and that no departure should be made from the present system in this respect.

(5) That local inspection of wiring, installations, etc. should be permitted, under Government control, as preferable to the present method, and that increased power should be left with local Commission to meet local conditions.

A decision in respect of this matter involves a report

to be submitted by this Commission at a later date.

(6) That a comparative statement of original estimates of the cost of development of Eugenia System as compared with the actual cost is not warranted by the extra power secured.

After reviewing all conditions it would appear that the figures submitted by the Commission's engineers to the municipalities were over sanguine, both with respect to the power required and the cost at which this power could be delivered to the municipalities. As previously pointed out, the Commission in its capacity as trustee for the municipalities should make every endeavor to see that the rates quoted are a maximum, and that these rates are based upon loads that will actually be realised, within a reasonable period of time.

(7) That the Eugenia System could be more efficiently and economically operated by a Commission appointed by the municipalities interested as they would be in closer touch with the work and more vitally interested in the financial aspect.

A decision in reference to this matter involves the broad subject of relations existing between three groups, namely, the Government, the Hydro-Electric Power Commission of Ontario and Hydro municipalities.

14. Georgian Bay Power Company - ("General Relations" -p.52

Under the conditions prevailing at the time the power site owned by this company was purchased for the municipalities by the Commission, it would not appear that the Commission took an unfair attitude in the matter. Had the Com-

mission failed to negotiate the most reasonable price possible, the municipalities concerned could have quite justly criticised the Commission for nonfulfilment of its duties as trustee. The broader questions that arise out of the evidence submitted in connection with this subject are: first, the contention that Hydro development under private initiative is hindered by the difficulty of obtaining funds in view of the wide power given the Commission under existing laws; second, that a private company interested in the development of power finds itself not only forced to cease development owing to Government competition, but, as in this instance at least, losing in addition a large part of the capital invested.

15. Cataract Power Company - ("General Relations" - p.54)

With respect to the claim for damages advanced by Mr. J. M. Deagle, representing the Cataract Power Company, it is pointed out that the company has the right to apply for arbitration proceedings in respect of this claim. Mr. Deagle has stated that he has requested a fiat from the Attorney-General to sue the Commission, but that this, while not refused, has not been granted.

16. Georgian Bay Milling & Power Company, Limited - ("General Relations" -p.55)

It would appear from the evidence submitted that the initiative taken in bringing the town of Meaford within the Eugenia System was the result of the desire of Meaford itself, and not due to coercion on the part of the Commission.

In view of all conditions obtaining with respect to this matter, the stand taken by Mr. G. T. Clarkson, trustee for the insolvent company, seems to be fair and reasonable. Mr. Clarkson suggests that the execution of the contract with the town for Hydro-Electric power be delayed, in order that some compromise may possibly be reached, which will be fair to both parties.

COPY

A P P E N D A

It has just recently been brought to our attention that the Commission has made substantial reductions in the renewal rates charged in various systems, and that such reductions have been made retroactive to the date of first operation.

In connection with this change Mr. Brown of Price, Waterhouse & Company has submitted a memorandum which in part reads as follows:

Memorandum re Reduction of Renewal Rates on the Eugenia System

"On December 20th, 1922, the Commission passed the following Minute reducing the renewal rates on the Eugenia System:

> 'The Chief Engineer having recommended a revised depreciation rate calculated on the basis of the life of the equipment, also having advised that this matter had been taken up with Mr. Francis and approved, it was decided that the depreciation rate for the Eugenia System should be fixed at 1.25 per cent. and that this rate be made retroactive to the date of first operation.'

The rate used by the Commission was 2.75 per cent. and this revision results in a reduction of the rate of 1.50 per cent.

I have been informed by Mr. Guilfoyle, of Messrs. Clarkson, Gordon & Dilworth, that the effect of this revision has resulted in a reduction in the renewal reserve of approximately $68,000.00, of which $54,000.00 has been applied as a credit to the municipalities and $14,000.00 as an addition to the contingency reserve.

The amount of $54,000.00 credited to the municipalities has the effect of reducing the cost of power to them during the entire period of operation to October 31st, 1921, and would have the effect of reducing the balances owing by them at October 31st, 1921, to the extent of $54,000.00.

The operating figures shown in the report are also subject to revision, especially the annual cost per horse-power.

On page 22 of the Consulting Engineer's report, it is recommended that the contingency reserve should be increased to $25,000.00 or $30,000.00. The balance at October 31st, 1921, of $12,079.58 together with the additional amount of $14,000.00 transferred from the renewal reserve will bring the reserve up to approximately Mr. Francis' recommendation.

Mr. Guilfoyle has pointed out the necessity of giving effect to the adjustments in reports made by this Commission, as it changes the results of operation to a considerable extent."

. . . . . .

In view of instructions given, no attempt has been made to recast the figures in order that they may conform with the changes recently made, but, it is pointed out, that in reporting to the Government some reference should be made to the reduction that has been made in the renewal reserve account.

The amount of $84,000.00 credited to the municipalities has the effect of reducing the cost of power to them during the entire period of operation to October 31st, 1931, and would have the effect of reducing the balance owing by them at October 31st, 1931, to the extent of $24,000.00.

The operating figures shown in the report are also subject to revision, especially the annual cost per horse-power.

On page 22 of the Consulting Engineer's report, it is recommended that the contingency reserve should be increased to $22,000.00 or $30,000.00. The balance at October 31st, 1931, of $12,070.50 together with the additional amount of $14,000.00 transferred from the renewal reserve will bring the reserve up to approximately Mr. Francis' recommendation.

Mr. Gillespie has pointed out the necessity of giving effect to the adjustments in reports made by this Commission, so it changes the results of operation to a considerable extent."

. . . . . .

In view of instructions given, no attempt has been made to reduce the figures in order that they may agree with the changes recently made, but, it is pointed out, that in reporting to the Government some reference should be made to the reduction that has been made in the renewal reserve account.